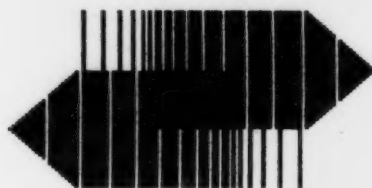


Discussion Paper

HARNESSING MARKET FORCES TO SUPPORT THE ENVIRONMENT



**Manitoba
Environment**



**The Hon. Glen Cummings
Minister**

Foreword

In its report to the United Nations, *Our Common Future*, the World Commission on Environment and Economy issued a challenge to the nations of the world to reconcile the need for continued economic progress and development with the equally important need to protect, repair and improve our environment. These concerns were echoed in Canada in the recommendations in the report of the National Task Force on Environment and Economy, which has now been adopted by the Provincial and Federal Governments.

The integration of environmental and economic decision-making requires that we consider new methods, new procedures, new partnerships. Nowhere is the search for new approaches more important than in the area of public finance, both to create the incentives to encourage environmentally sound development and to provide the fiscal means to deal with the costs of environmental restoration.

This discussion paper of the Department of Environment considers a number of ways in which financial mechanisms such as taxation and tax incentives, as well as fees, licences and environmental levies, can be used to harness the economic forces of the market to support environmental protection. It is expected that the paper will stimulate discussion in this important area. This discussion, it is hoped, will assist the Government in developing appropriate fiscal policies in support of sustainable development. I look forward to your ideas and input.

Glen Cummings
Minister of Environment

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Introduction: The Need to Act

As Canada enters the last decade of the 20th century, concern over the environment is forcing a serious re-evaluation of how we treat our soil, air and water and our endowment of natural and biological resources. Every day, we are learning how the quality of our environment is eroded as a result of development which ignores the long-term consequences of massive technological change on the earth's ecosystems. The public has begun to respond to this threat to its future well-being by indicating unmistakably that protecting the environment should be built into how we as a society do business and how we make governmental and social decisions.

In April 1989, the Manitoba Government announced that it was committed to introducing fiscal measures to complement environmental regulation. An Environmental Protection Tax on non-deposit alcoholic beverage containers was initiated, coming into effect in August 1989. At the same time the Minister of Finance indicated that a discussion paper on the broader introduction of financial mechanisms would be prepared. *The intent of this paper is to indicate how financial mechanisms could be used to support sustainable development and to initiate a consultation process on financial measures appropriate to Manitoba.*

Growing Environmental Concerns

According to Lester Brown of the World Watch Institute, the late 1980's were the years that the Earth started to "hit back" after decades of environmentally reckless economic growth. Everywhere, danger signals have become evident, indicating environmental problems on a global scale:

- Degradation of the ocean biosphere through widespread pollution.

- Degradation of lakes and forests through acid rain.
- Desertification and drought through short-sighted development.
- Change in climate through unchecked emission of greenhouse gases.
- Major losses in species diversity.
- Major increase in toxicity levels in air, soil and water.
- Growing waste disposal problems.
- Deterioration of the atmosphere's protective ozone layer.

While Manitoba has been spared major environmental crises (such as Love Canal, Exxon Valdez, and St.-Basile-le-Grand), Manitobans are becoming increasingly concerned about preserving the integrity of their local and their global environment. These concerns in Manitoba and in the Western World generally suggest a major, and possibly irreversible, change in public sentiment about the environment. The real test of this change in public sentiment, however, lies in the question whether there now exists a willingness to bear the costs of environmental restoration and the cost of industrial adaptation required to achieve sustainable development.

Growth and Development have had an Environmental Impact

The growth and technological development of the past several decades has placed a burden on the environment unparalleled in previous human history. While this growth has satisfied human needs to raise standards of living, a balance remains to be struck with how the natural environment is affected. Environmental deterioration threatens not only our quality of life, but future economic development as well:

- It has been estimated, for example, that soil erosion and climatic change, if continued at the pace experienced over the past 50 years, could seriously jeopardize the future of agriculture in Manitoba.

- Use of chemicals, such as chlorofluorocarbons (CFC's), have permitted the widespread and inexpensive use of a wide variety of products. However, we now know that their use has directly led to a deterioration of the ozone layer which, if continued, will seriously threaten human health and agricultural production.

- Evidence of groundwater contamination associated with improper disposal and use of chemicals has been discovered in many places around the world.

Awareness of Impacts is Greater

Advances in detection and measurement technology have made possible information about contaminants far beyond the level of even a decade ago. Contaminants such as dioxins and furans are monitored in parts per quadrillion! As our awareness of contamination increases so does the need to put this information into context.

While there is a certain impulse to regard "any" pollution as too much, it is becoming increasingly important to put the "relative risks" of different pollution into a context if we are to make informed decisions about cost/risk trade-offs. Although this perspective may be repulsive to some, it signals definitively a world view in which it is no longer possible to pretend that there *can* be development without environmental effects. We need to know what the effects of development are, not just from a narrow project perspective, but from an ecosystem perspective. As well, as we learn of irreversible impacts, such as the accelerated extinction of plant and animal species, we are reminded of the fragility of life itself on our planet. If we are to secure our future, we have to balance the long-term societal and short-term individual considera-

tions implicit in our collective and individual economic behaviour. This will not likely be easy.

An Aware and Less Tolerant Public

A recent cross-Canada poll reveals that 34% of the population feels that environmental protection should come before economic development, with the majority (62%) favouring a balance and only 4% favouring economic development. This perspective was held in all regions. Results such as this reveal a dramatic shift in values. Above all else this lesson has not been lost on the marketplace.

The strong response to the marketing of a "green" line of "environmentally friendly" and "healthy" products by a large supermarket chain has revealed that a substantial proportion of the population is prepared to alter its purchasing behaviour, and even pay more, to exercise this choice. Perhaps the most disturbing poll result of the last few years was the high proportion of Canadians who anticipated that pollution would increasingly threaten their health in the years to come.

Awareness of the Cost of Environmental Degradation

As long as development produces concentrated benefits and diffused, impersonal, environmental costs, it will be difficult to change the economic behaviour of a society. At the same time, society is becoming increasingly aware that environmental remediation is urgently necessary and that it can be very expensive.

In the United States, the Superfund program has spent billions of dollars on the clean-up of previously uncontrolled hazardous waste sites. Although the situation in Canada is considerably better, a recent study estimates the cost of cleaning up abandoned toxic waste sites in Canada to be in excess of 200 million dollars.

Another recent Canadian study estimates that by the year 2000, the cost of addressing presently recognized environmental problems would be in the range of \$1400 per Canadian family. This translates to roughly 3 1/2% of gross family income. This cost will appear as increases in the price of goods and services, and as increases in taxation.

In addition to these general costs, industry is recognizing an increased liability to environmental costs. These costs result from lawsuits, increased fines, the increasing pressure of regulation and, most importantly, public pressure that regulation be extended and enforced.

As a result of the gradual rise in the public awareness of environmental issues, there has been a significant rise in the public's expectations regarding environmental protection. These expectations extend to government, private corporations, and individuals themselves. This is likely to continue as we approach the 21st Century.

The Limitations of Regulation

Government's response to environmental protection has gone through several transitions.

The initial focus of governmental concern, early in the century, was on controlling discharges and effluents that posed relatively immediate threats to human health. Acceptable contamination levels were identified and technologies were developed to ensure that sanitation systems would not spread disease. At roughly the same time, concern over the depletion of natural resources spawned the development systems to promote resource conservation and management.

Following World War II an unprecedented wave of technological change brought an introduction of industrial contaminants on a scale never before ex-

perienced. This stimulated in the 1960's a dramatically increased environmental awareness, symbolized to many by the 1962 revelations of the effects of DDT on wildlife (Rachel Carson's *Silent Spring*). Later in the sixties, this early environmental concern was generalized into a more broadly conceived ecological perspective on the environment.

The growing ecological perspective fostered the adoption of environmental legislation and the creation of environmental ministries in most industrialized countries over the 1970's and 1980's. The approach of this initial wave of environmental legislation was still principally that of "measure and control". It was by its very nature reactive and focussed on "point source" pollution, i.e. identifiable single sources such as a large mill or plant.

The concept of impact assessment became integrated with this approach, and thus largely focussed on new large-scale projects. Diffused pollution was much more difficult to deal with technically and socially. The recently passed Environment Act in Manitoba represents a step forward in this regard as it establishes a comprehensive framework for the assessment of a broad range of activities.

Measure and control, while a necessary component of a comprehensive approach to environment protection, has proven to be insufficient to prevent environmental degradation. It has several important short-comings:

- Environmental problems are increasingly seen to be not only local concerns but to involve long-range transboundary effects (e.g. acid rain) and cumulative global effects (e.g. greenhouse gases and climatic change).
- Old industry tends to escape control while new industry is relatively more "penalized".
- Dispersed (non-point) pollution can only be addressed by intervening directly into design standards (e.g. automobile emission levels).

•Intervention tends to come at the "end of the pipe" when a specific pollution level is monitored. Retrofit solutions have tended to be expensive and disruptive. This makes them economically and politically unpopular.

Sustainable Development

Because of the limitations of "measure and control" as an environmental management strategy, governments world-wide have been looking for alternative approaches which balance economic growth with environmental sustainability.

In the Report of the World Commission on Environment and Development, it was concluded that:

"Humanity has the ability to make development sustainable - to ensure it meets the needs of the present without compromising the ability of future generations to meet their own needs."
(*Our Common Future*, Page 8)

At the initiative of the Canadian Council of Resource and Environment Ministers (CCREM now CCME — Canadian Council of Ministers of Environment), a National Task Force on Environment and Economy was established to develop recommendations concerning the adoption of the World Commission's recommendations. The National Task Force included environment ministers, leading industry executives, and representatives from the non-government groups and from the academic community.

Among its recommendations the Task Force noted, "Government, industry, academic and other non-government organizations should develop new tools and improve existing tools which achieve more efficient and effective environment-economy integration. These tools should include consideration of:

- "Analytical methodologies and techniques such as cost-benefit analysis, risk assessment, and increased use of environmental impact assessment.
- "Economic mechanisms such as contaminant charge schemes, tradeable emission/discharge rights, financial assurance and performance deposits, investment tax credits, credits for exceeding environmental standards, and reduced interest bonds.
- "Information generation and reporting systems such as state of the environment reporting.
- "Improved techniques for the valuation of environmental stresses and the benefits of environmental protection.
- "Economic incentives which promote effective environmental protection by business."

Our approach to environmental protection must, above all, encompass an "anticipate and prevent" orientation. The measure and control strategy will continue to play a role as an enforcement tool, but nothing short of a wide-reaching proactive approach will succeed in the long-term.

The Government of Manitoba has firmly committed itself to reshaping the Manitoba economy in a sustainable development mold. In the April 1989 Budget Speech, it was stated that an Environmental Protection Tax system would be developed to support the environment. In addition to this commitment, specific measures to strengthen environmental protection are currently underway. A stand-alone Department of Environment has been established for the first time in Manitoba.

Environmental programmes received an 11% increase in the current budget — their largest increase in the decade in funding! Specific initiatives supported by this increase include the implementation and strengthened enforcement of the *Environment Act* and of the *Dangerous Goods Handling and Transportation Act*; the development of a comprehensive waste reduction and prevention strategy to promote recycling; the

banning and control of ozone-depleting substances; and the preparation of a State of the Environment Report.

The challenge is clear. To secure our environmental future requires not only that we repair past damage, but also that we change current practice and avoid future damage. All this requires a major adaptation in technology and a major change in economic behaviour. Specifically, costs that previously were ignored and left for the future now have to be identified and absorbed in the present. *How best to do this is a key question. There is, thus, an urgent need to develop and institutionalize new mechanisms for identifying and allocating environmental costs in order to shift the economy towards sustainable development.*

We must develop a common agenda, a common analytical framework, a common arithmetic between our business and environmental bookkeeping. Generally accepted accounting practice and discounted cashflow analysis may give business and governments alike a distorted view of their real assets and liabilities. It may be that our approach to financial analysis gives our economic decision making an inherent short-term bias which may well prove environmentally fatal. This paper addresses how economic decision-making and government fiscal policy can incorporate specific measures — “green” financial mechanisms — to correct this perceived short-term bias, and how financial mechanisms can be used to promote sustainable development.

'Green' Financial Mechanisms and Sustainable Development

The Environmental Dynamics of a Market Economy

One of the greatest successes of the market economy is its ability to provide a mechanism to allocate resources in an efficient manner. With production largely in private hands, the consumer has the freedom to choose what to buy and from whom. Competition between alternative providers of goods and services determines their price and availability.

Economists generally acknowledge that for marketed goods, prices work well to guide and influence production, consumption and use. They also recognize, however, that prices and market systems work less well, or even fail to function in situations where benefits or costs are generated to parties external to those directly involved in market transactions. This is usually the case with environmental degradation. The costs of pollution are one of the clearest examples of such external costs. These costs are exacerbated when economic benefit of environmental negligence are immediate while their consequences are subtle, relatively invisible and long-term.

The "Greenhouse Effect" is the result of the accumulation over the decades of countless emissions to the atmosphere which individually were harmless but collectively now threaten the environment. The acid rain which has sterilized so many Canadian lakes did not result in large, visible fish kills or any other immediate impacts which could be traced to specific actions.

One of the dilemmas addressed by the "sustainable development" perspective is that modern industrial economies have dealt so effectively with

the scarcity of food, manufactured goods, and services in developing their societies that they have created new scarcities of clean earth, clean air and clean water! These, in turn, must now be taken into account in the economics of the market.

Experience in planned centralized economies has demonstrated that environmental degradation is not the unique feature of market economies. Some of the most severe environmental problems are found in centralized economies. There is, accordingly, little reason to believe that solutions to our environmental problems require a system featuring strictly administered prices by a centralized administration.

In response to clearly identified needs for environmental clean-up, the market has responded vigorously, if unevenly, in the past several years. "Socially responsible" investment funds have emerged to provide capital to firms that meet specified criteria. These funds have tended to outperform the industry average. Consumers have demonstrated a growing preference for "environmentally friendly" products even at the expense of added inconvenience or cost. Many firms have invested vast sums in "cleaner technologies" to reduce the environmental impact of their operations.

While these trends have been encouraging, they have not been universal. And by themselves they have not guaranteed that a level playing field exists between competing firms with contrasting policies toward the environment. In pointing out that the market operating under common rules can contribute towards a cleaner environment, the *Financial Post* of September 25, 1989 concludes that:

"The system of allocating resources must include incentives for proper care and conservation. In a market economy, that means prices charged for the recovery and use of those resources must capture their true economic costs to society. That involves not only the standard economic problems of reflecting the relative scarcity of different resources and the opportunity costs of using one in preference to another, but the costs of the pollution given off in the course of production — whether it is to be cleaned up, or simply endured... Putting the market to work for the environment calls for government action on two fronts: stopping policies that encourage pollution and starting policies that discourage it."

Government's Role

While environmental awareness has been growing in the private sector, the responsibility at present remains with government to provide leadership in the drive for sustainable development. It is specifically up to government to determine, within the bounds of its jurisdiction, the "rules of the game". All the while it is essential to bear in mind that our economies are highly integrated among provinces and countries, and so equity and consistency are essential.

Establishment of the "rules of the game," above all, should ensure a level playing field for economic actors, and should ensure that sustainable development is not discouraged by regulation, planning practice, or environmentally unfriendly incentives elsewhere in government. There are several areas of responsibility that uniquely belong to government:

- Establishment and enforcement of regulatory functions specifying minimum standards to be observed;
- Provision of information on the status of the environment from a societal perspective; and
- Establishing and maintaining financial incen-

tives that will modify economic activities toward environmental responsibility.

How far should Government go in using taxation policy and price modification strategies to support the environment? In shifting economic behaviour from unsustainable to sustainable practices, government is uniquely positioned to provide a general leadership. At the May 1989 *Environment and Economy: Partners for the Future* conference in Winnipeg, J. Anthony Cassils, an executive in the Canadian financial industry, observed that Government cannot remain neutral given the urgency posed by threats to the environment:

"Some people are uncomfortable with the idea of designing the tax system for purposes other than raising revenue with a minimum of disruption to the market economy. The tax system has been the subject of assaults in the past by various special interest groups. However the environmental crisis is unlike anything we have confronted before. It is not the cause of one special interest group, it is our common future. The tax system can be designed to help diminish and recapture some of the environmental costs. The measures must be well thought out and clearly focussed."

Tax policy in Western economies tends to fluctuate between the concepts of a neutral tax and a just tax. The neutral tax seeks to have the hand of government take only what is needed to maintain itself, and to tax evenly so as to cause a minimum of disruption to the free market. The just tax is based upon the need to achieve some agreed upon social ends, and the amount of tax is determined by the ability to pay. The question for society is whether the development of fiscal measures to promote sustainable development are warranted to counterbalance other incentives which have been instituted for other purposes but which reward unsustainable practices; and whether they are warranted to address the urgency of the situation.

Fiscal measures provide a unique opportunity to government to modify market behaviour and to use market forces in order:

- To take into account within the economy environmentally harmful external costs;
- To support systems for proactive and preventative management in order to avoid increased costs of remediation; and
- To allocate costs and benefits equitably.

What this means is that as the government sets aggregate policy goals (e.g. waste reduction targets, air quality targets), the tax system and other financial mechanisms are modified to channel economic activity toward those goals. The government would still regulate and police developments as it does now. However, channelled by the tax system, economic decisions would tend to support rather than detract from the regulatory approach.

The advantage of financial incentives is that, properly conceived, they are self-regulating. Thus, overall compliance with regulations would be much higher, efficiency would be much higher and hence, the total social cost should be much lower. A combination of regulation and incentives sets up a self-accelerating economic dynamic which promotes the attainment of environmental goals.

Given the massive leverage effect in a market economy of using financial mechanisms to achieve environmental goals, it is important that the specific goals are carefully thought through. Since the market is a more efficient resource allocator than a regulatory system, government should set broad environmental targets and complement regulations with market incentives.

Channeling the market is the principal mechanism to integrate economic and environmental decision-making. The first objective is to better reflect the real environmental costs of products or processes on the basis of the polluter-pay prin-

ciple. This requires a clear differentiation between more and less acceptable processes and products based on their environmental impact. A secondary objective is the raising of funds to support expenditures in support of sustainable development. The market has failed to support sustainable development not because it does not work efficiently, but because there has been no allocation of costs that threaten sustainability.

AN INVENTORY OF FINANCIAL MECHANISMS

The challenge, then, is to set new parameters for the marketplace without burying it in bureaucracy, to channel market forces rather than stifle them, and to build environmental standards and self-discipline into the economy.

Once there is agreement that taxation and other financial measures are useful mechanisms for implementing sustainable development, there is an almost infinite variety of measures that can be introduced.

Measures can be pursued to modify the prices of commodities that are bought and sold in the market; to attach values to discharges and emissions; and to encourage or discourage investment. Essentially they all aim at using economic decision-making to avoid costs, to allocate costs or to share environmental costs. The following sections describe some of these mechanisms and provide illustrations as to how they apply in specific hypothetical cases.

Price Modification

The intent of price modification mechanisms is to directly incorporate the full life-cycle cost of a product into its price, so as to:

- Have resource allocation decisions incorporate true costs; and
- Create a nominal incremental value which can then be reallocated to activities that are necessary to deal with the environmental problem associated with the product.

A variety of different mechanisms can be incorporated, including deposits, fees, and specific product taxes.

Deposit-Return Systems

Deposits are one of the most widely understood mechanisms for modifying prices, although in the pure sense price modification is not the specific intent of such systems. A deposit system primarily attempts to create an incentive for the physical return of a product so that it may be reused, recycled and/or diverted from disposal.

A nominal value is assigned to a product as a deposit which is then returned to the consumer when the product or container is surrendered after use. The incentive for return for such a system is heavily influenced by the level of the deposit as well as by the value of the container or the used product. High deposits provide an incentive to a consumer to return the container to the producer.

High intrinsic values encourage operators of deposit systems to maintain sufficiently high deposit levels and to promote the deposit system itself. A high deposit, of course, raises the apparent initial price of the product. This, in turn, may influence the level of consumption, particularly if substitutes are readily available.

The high return rates achieved by products such as beer bottles can be explained by the fact that the value of the container is well in excess of the nominal deposit. This provides a strong incentive for a well-supported return system to be established and maintained. A deposit system depends on consumer compliance and in this case, "returns" are well incorporated into the "culture" of how the product is handled.

A traditional deposit system will not work as well, however, in situations where the value of the

container is low (e.g. beer cans in contrast to beer bottles). In such a case, the deposit is worth more to the manufacturer than the economic value of the container. Although aluminum containers do have a significant economic value in bulk, distributors who hold a deposit have no particular interest in getting the cans back.

If the deposit system is such that the unrefunded deposits are retained by the operator, then the incentive is directly opposite—the less successful the return rate, the more money retained by the operator! An estimated \$500,000 in unrefunded deposits are estimated to be retained annually for beer cans alone in Manitoba.

Elsewhere deposit systems have been developed as voluntary as well as mandatory programs. In those latter cases, unrefunded deposits have been directed to separate accounts within the public treasury to remove the incentive for low return rates. Generally, these unrefunded deposits held within the public treasury are used to develop a more efficient return system or to promote similar environmental projects.

Possible Application of Deposit-Return Systems

Apart from the familiar area of beverage containers, mandated deposit/return systems are possible for other products such as tires, motor oil and batteries. Allowances must be made for handling charges for systems to work efficiently.

Deposit systems generally involve manufacturers directly in their organization and administration. When considering deposit systems, the following should be taken into account:

- Such systems work best when there is an intrinsic benefit to recover and potentially reuse the product;
- Unrefunded deposits should not be retained by the producer;
- Clear recycling and waste reduction targets for

Examples of Deposits (Non Beverage)

Tires: e.g. a deposit could be placed on tires which would be partially refunded when the tire is presented to a rubber recycler.

Oil: e.g. a per litre deposit could be placed on motor oil. Waste oil presented to re-refiner would be reimbursed at a per litre amount.

Batteries: e.g. a deposit could be placed on car batteries partially refundable to a recycler.

the deposit system should be carefully worked out in consultation with the industry and the public;

- Costs and benefits of the administration of the system must be taken into account; and
- The problem of materials being imported "out of jurisdiction" where no deposit system is in place must be considered.

Environmental Fees

Mandated deposit-return systems attempt to shift responsibility for disposal directly to the consumer, with specific obligations on the producer and/or distributor. The social costs associated with consumption are thus absorbed in the price and can work well for specific recyclable consumer commodities, subject to the conditions regarding relative values described above. This approach does not work nearly as well with intermediate goods, i.e. goods intended for further processing, or with goods that cannot be easily recycled.

The production/consumption of intermediates and of non-recyclable goods may well have significant environmental effects and associated social costs. To recover these costs, a system of environmental fees, grouped into pre-disposal levies and producer discharge fees, can be applied.

Pre-Disposal Fees

In principle, pre-disposal fees are designed to track the actual social costs associated with these commodities. These charges would be incorporated into the sale price of a commodity so that consumers would, in effect, pre-pay the imputed social cost of recycling or waste prevention. Such fees, once collected, would be applied to those environmental programs designed to deal with the specified impacts or related objective.

A system of environmental fees could be used to limit the use of the natural environment as a free dumping ground. By building the environmental costs into production cost or the consumer price, fees achieve the goal of affecting market behaviour through making relatively benign goods either more profitable or cheaper than relatively harmful goods. It also directly meets the second objective of providing a revenue stream for environmental programs in the targeted area.

Examples of Pre-Disposal Levies

- Storage fees on PCBs.
- Litter prevention and pre-disposal fees on paper, disposable packaging, one-way containers.
- Impact fees on non-recycled products such as household batteries, oil containers, disposable diapers.
- Pre-disposal fees on toxic waste and pesticide containers.

When considering pre-disposal fees, the following should be taken into account:

- Clear recycling and waste reduction targets for the pre-disposal system should be carefully worked out and set by the Government in con-

sultation with the industry and the public;

- Revenues collected must be seen to be applied to the attainment of the environmental goals set for the specific product against which the fee has been applied;
- When the goal has been achieved; e.g. a certain percentage of the material being recycled by a specific date, the system should be modified or eliminated; and
- Costs and benefits of the administration of the system must be taken into account.

Emission and Discharge Fees

Differentiated pre-disposal fees at the consumer level are matched with emission and discharge fees at the producer level. Again, fees would end the practice of using the environment as a free good. To work optimally, discharge fees should be tied to the attainment of specific environmental goals and to a clear set of technical guidelines.

In principle, quality standards for air, water and soil would be set within the context of ecosystem sustainability. Ecosystems, like all living organisms, have a large but finite capacity to adapt to a changing environment. Once this capacity is exceeded, they begin to degenerate. One must thus set air, water and soil quality standards to ensure that aggregate emissions are below the threshold. This threshold becomes the basis for an emission fee structure.

Firms whose discharges are above the threshold standard are assessed a surcharge, firms who are below are given a credit. If credits are made transferrable, firms who can reduce emissions relatively cheaply can sell their credits to firms for whom this is much more expensive. Aggregate emission levels would thus be reduced in the most economically efficient manner.

If the aggregate permissible standard were tied

to the industrial average, the market, under a tradable discharge scheme, would automatically and continually stimulate improved environmental performance. In theory, transferrable discharge fees/credits are potentially the most efficient mechanism to achieve environmental targets. The significant feature of a tradable emission scheme is that it positively rewards good environmental performance in a self-regulating scheme.

Variants of this approach are currently being applied. The U.S. Government recently proposed "tradable" air pollution permits as part of its acid rain control program. The problem with the concept of tradable permits is the political acceptability of acknowledging the "right to pollute". It should however be noted that air quality standards still apply, i.e. discharges must remain within acceptable limits.

In Canada the central strategy to limit use of chlorofluorocarbons (CFC's), which contribute heavily to the destruction of the Earth's ozone layer, is the establishment of quotas for CFC use and a gradual phasing out of their use. In this case, where a reduction to zero is identified as a target, the tradability of a quota is a more contentious issue than it would be in a case where a "target" acceptable level of discharges or emissions can be identified.

Initiatives are under way across Canada to strengthen market rates for water use. Winnipeg is in fact one of the few cities in Canada to have pursued a system of charges for water directly tied to use.

When considering emission and discharge fees or taxes, the following should be taken into account:

- There must be a regulatory system in place which allocates and regulates emission standards for industry in an equitable manner;
- The fees or taxes must encourage industry to exceed the set standards, rather than simply

Examples of Emission and Discharge Fees

- Discharge Fees for Sulphur, Nitrous Oxide
- CO₂ Emission Fees
- Sewage Discharge Fees
- Discharge fees for pulp mills, mine tailings, processing plants.
- Water use fees for hydro reservoirs.

treating the fee as a licence to pollute;

- Revenues collected must be seen to be applied to the attaining of the environmental goals which have been set; and
- Cost benefits of the administration of the system must be taken into account.

Specific Product Taxes

Price differentials can also be achieved through the use of product-specific excises which can be used to discourage the use of environmentally "unfriendly" products in favor of more environmentally desirable products and, also to reflect the external cost of disposal or recycling of the product. Two recent "environmental" taxes illustrate this concept.

An additional tax on leaded gasoline creates a price differential to affect consumer choice. The tax on glass containers of alcoholic beverages is intended to promote the recycling of the taxed product and to promote environmental programs generally.

When considering product specific taxes, the following should be taken into account:

- Such taxes are generally easier to administer and collect than fees, for which a separate administration may be necessary;

***Examples of Additional
Product Specific
"Environmental Taxes"***

- An excise tax on disposable diapers.
- An excise tax on air conditioned cars (related to CFC discharges).
- An excise tax on car batteries.

•Imposition of taxes do not create the potential jurisdictional problems which may occur with the imposition of fees and the revenues may be applied to a broader range of environmental concerns.

General Fiscal Measures

Incentives Through Tax Expenditures

The Canadian tax system, in addition to its principal purpose of raising revenues for government, is also used to meet some of government's economic and social objectives. In essence it meets these other objectives by providing an incentive to taxpayers to undertake desired actions and, in return, to benefit from a reduction in, or a deferral of, income taxes payable. The government thus accomplishes its objectives through foregoing revenues rather than through incurring direct program expenditures.

This concept is generally referred to as "tax expenditures" which can take the form of exemptions, deductions, credits, reduced tax rates, or tax deferrals. "Tax expenditures" have been used by governments in many areas to promote social and economic programs. They can be used to promote environmental protection. Since tax expenditures lead to reduction in tax revenue, it is important that their result be measurable against their cost.

**Kinds and Application
of Income Incentives**

Tax incentives can be classified in three main categories:

- Tax credits;
- Capital Cost Allowance concessions; and
- Tax rate reductions.

There are instances where tax credits, capital cost allowance concessions and tax deductions have been used to influence investment decisions by taxpayers. Tax rate reductions have not been used in this regard, but have generally focussed on consumer behaviour.

In most cases, tax incentives have been provided throughout the Federal Income Tax Act and related regulations. In some cases, incentives are also provided through other legislation. For example, custom duties and excise sales tax legislation have been used in the past to provide incentives in certain areas, including some affecting the environment.

One example of using the sales tax system is the excise tax on automobile air conditioners which has the intended effect of discouraging the use of air conditioners, thus conserving fuel and reducing air pollutants.

Income Taxes

Many of the incentives built into the income tax system have been intended to encourage investment in manufacturing and processing and move companies away from simply the extraction of natural resources. There are as well significant uses of tax incentives for companies involved in the resource industries. Also included are special incentives to favour regional development and employment policy goals. These incentives clearly have at least an indirect impact on the environment. Incentives which promote development

without reference to environmental criteria may in fact contribute to environmental degradation.

Under the Canada-Manitoba Tax Collection Agreement, the Federal Government, through Revenue Canada, administers the Provincial Income Tax Act at no cost to the Province. In return, Manitoba agrees to accept the federal income tax base, including all rules determining income, deductions, residency etc., and is allowed only to set its rates — both personal and corporate — against the federal bases. *Any Income Tax Measures which are not related to basic tax rates, including surtaxes, reductions, etc., can be implemented only with federal concurrence.*

Accelerated Capital Cost Allowances

In determining the federal income tax base, the capital cost of long-term assets such as buildings and equipment, is deductible on a declining balance basis (Capital Cost Allowance) related to the asset's economic life. In order to promote the expansion of certain activities, such as pollution abatement, the Federal Government allows faster write-offs of capital equipment (Accelerated Capital Cost Allowance) used for air or water pollution control. Such expenditures may be written off over a three year period: up to 25% in the first year, 50% in the second, and the balance in year three, even though the economic life may be far longer than three years. Because Manitoba uses the same definition of taxable income as the federal government, Manitoba incentives parallel federal incentives.

Tax Credits for Environmental Investment

Prior to 1988, the federal and provincial governments made use of Investment Tax Credits — amounts deductible against taxes payable — which were "earned" by acquiring capital assets, as economic incentives. By 1988, virtually all in-

vestment tax credits were eliminated, except for specified regions or for exploration or scientific research. In their stead, the federal government lowered corporate tax rates.

Environmental investment could be added to the list of expenditures which qualify. Alternatively, Manitoba might consider implementing a system under which a percentage of expenditures on environmental investment would be credited against (provincial) income taxes payable (similar to the Manitoba Manufacturing Investment Tax Credit in effect between 1984 and 1987); however, federal concurrence to administer this type of credit would be required. Critical to any such incentive is definition of eligible environmental investments.

Tax Rebates for Environmental Investment

If the federal government did not permit Environmental Tax Credits as part of the tax system, strictly provincial (self-administered) rebates might be possible, e.g. the provincial sales tax on equipment or material used in reducing or eliminating pollution would be reduced, entirely removed, or refunded; a credit against capital taxes, payroll taxes or any other tax payable to the Province could be allowed, based on some measure of investment or some identifiable value of pollution abatement realized.

Flow-Through Provisions for Environmental Investments

The federal income tax system permits certain high-risk ventures involved in exploration for oil or minerals to "flow through" to investors the expenses incurred in exploration. Flow-through amounts are deductible against the investor's other income, thereby reducing tax liabilities. In theory, expenses are allowed to flow through because the corporation performing the exploration work is not a mining (refining) company, but a prospector

which will never "earn" mining income to offset the exploration costs. In 1986, the federal government, in order to curb abuses, changed the rules governing flow-through shares and severely restricted their applicability. The federal government could be asked to consider broadening the applicability of this particular mechanism to environmental investments.

Tax-Exempt Bonds

Although used widely in the United States as a source of financing for local administrations, tax-exempt bonds are not a current feature of the Canadian tax system. Excluding interest from environmental bonds from taxable income affects the tax base. The provinces which have a Tax Collection Agreement with the federal government could not issue tax-exempt bonds without the concurrence of the Federal Government, since the Federal Government also would also stand to lose revenue from such bonds.

Special Expenditure Measures

Loans and Direct Grants

A more direct form of financial incentive for environmental protection would be to make capital available for environmental purposes through loans and grants. The *Environment Act* now contains provisions for loans and grants, but these have not been used. Examples of loans and grants used in other jurisdictions include:

- Direct loans at favoured rates for pollution abatement equipment. Since such loans would only be available for pollution abatement, an incentive would be provided firms to favour environmental investments over other potential investments. Unlike tax based incentives, loan incentives are of value in start up situations and to companies with no taxable income.

- Revolving loan funds for public environmental infra-structure projects. Municipalities would receive low-interest loans from a fund maintained in part by loan repayments. Such loans could be used for projects, such as the sewage plant construction supported by the U.S. federal government's Clean Water Act.

- Loan guarantees for environmental investments. These would have an effect similar to that of direct low-interest loans, only weaker. On the other hand, barring loan defaults, the cost to the government would be considerably less. Such an approach would spread available capital funding over a larger number of potential projects.

- Direct grants or investments. These could be used to share the risk of starting up new environmental industries. This could include the use of cash incentive grants or the use of convertible preferred shares, both of which have been used to encourage economic investment.

Alternative Financial Mechanisms

The increasing cost of environmental protection has lead directly to the creation of funds to deal with specific environmental concerns. These are referred to as Alternative Financial Mechanisms or AFM's. They can become powerful tools to focus attention and resources on specific environmental concerns. Frequently, the funds are created through the designation of specific taxes or fees.

While such funds are attractive in many ways and should be considered, there are some cautions which need to be considered. First, the creation of specific funds, if not carefully controlled, can result in the "skewing" of environmental policy by making resources relatively available in those areas to which a fund applies and potentially unavailable in other areas which, in fact, may be more deserving of support. Second, care must be taken to ensure that revenue gains from the use of AFM's are not partly or wholly offset by reductions in

general appropriations available for environmental programs.

Special funds and funding mechanisms have their place, but need to be balanced and combined with the normal budget process. Only through the budget process can there be an equitable allocation of overall environmental costs. In a society like Manitoba, the polluter-pay principle embodied in fees and charges has to be balanced against the consequences placing major and perhaps disproportionate burdens on certain sectors who may be price takers in external markets. These potential inequities can only be addressed in overall fiscal policy.

AN AGENDA FOR ACTION

Applicability to Manitoba

Given the heightened awareness of environmental issues, it is a certainty that governments everywhere will begin to make use of financial and fiscal measures to complement regulation in environmental policy. As part of its environmental agenda, the Manitoba Government is committed to moving towards new mechanisms to promote sustainable development. The Government is thus prepared to implement, with due consultation and with sensitivity to the interests of the groups affected, some of the mechanisms discussed in this paper.

Because Manitoba will be charting new ground in implementing green financial mechanisms, we have to move cautiously. However, caution is not a synonym for inaction. We simply cannot wait for environmental degradation to become irreversible before we commit to action. At this juncture, no amount of discussion or consultation can substitute for getting on with it.

Moving immediately to implement some environmental financial mechanisms, to begin in a modest way, to harness the market, represents a major step towards environmental leadership. Such measures will also provide a basis for raising funds essential to pursue initiatives that are required immediately.

An agenda for action

The following immediate steps are proposed:

1. The Department of Environment will begin immediately to put in place an administrative structure to facilitate the use of environmental fees to modify prices of specific products.

2. The Department of Environment will proceed with legislation to encourage recycling and waste prevention which will:

- Require the development of a waste reduction strategy for the province, and,

- Provide legislative authority to require deposit return and pre-disposal fee systems in selected areas.

3. An *Environmental Innovations Fund* will be established, administered by the Department of Environment, to provide resources for environmental programs, incentives and grants.

4. The Department of Environment will work actively with the Department of Finance to explore general tax measures and other financial incentives to promote environmental targets, including:

- The use of tax free loans,
- The use of tax expenditures, and
- Consideration of how new tax measures can take into account environmental protection.

What do you think?

Manitoba Environment would like to hear from you. Your input into this most important issue and discussion is invited, by contacting our office at 960-330 St. Mary Avenue, Winnipeg, Manitoba R3C 3Z5 (Phone 945-8443, toll free 1-800-282-8069.)